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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Geoff W. Taylor et al.

SERIAL NO.: 10/700,016

GROUP ART UNIT: 2811

FILED: November 3, 2003

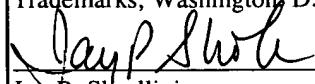
EXAMINER:

FOR: P-Type Quantum-Well-base
Bipolar Transistor Device
Employing Interdigitated Base
and Emitter Formed with a
Capping Layer

ATT'Y DOCKET: OPE-026

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

I hereby certify that this correspondence is being deposited on
this day with the United States Postal Service as first class
mail in an envelope addressed to : Commissioner of Patents and
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Jay P. Sbrollini

Date

Reg. No. 36,266

Sir:

SUBMITTAL OF DOCUMENTS PURSUANT TO DUTY OF DISCLOSURE

Pursuant to applicant's duty of disclosure 37 CFR Section 1.56, enclosed is a completed form PTOL-1449 as well as copies of the cited documents which relate to the above-referenced patent application. Since this document submittal is being presented prior to the first examination on the merits, no fee is due herewith.

The article entitled "10-Gb/s High-Speed Monolithically Integrated Photoreceiver Using InGaAs p-i-n PD Planar Doped InAlAs/InGaAs HEMT's" describes a long wavelength monolithically integrated photoreceiver which is capable of operation at a 10-Gb/s NRZ light signal.

The paper entitled "10-Gbit/s InP-Based High-Performance Monolithic Photoreceivers Consisting of p-i-n Photodiodes and HEMT's" describes results that demonstrate the feasibility of using receiver OEIC's fabricated using a stacked layer structure of p-i-n photodiodes and HEMT's grown on INP substrates by single-step MOVPE.

The article entitled "10 Ghz Bandwidth Monolithic p-i-n Modulation-doped Filed Effect Transistor Photoreceiver" describes the fabrication of a photoreceiver circuit using an InGaAs p-i-n photodiode in GaAs/InAlAs pseudomorphic modulation-doped field effect transistor (MODFET) based preamplifier.

The article entitled "20 Gbit/s Long Wavelength Monolithic Integrated Photoreceiver Grown on GaAs" describes the fabrication of the first 20 Gbit/s 1.3-1.55 μ m wavelength monolithic integrated photoreceiver grown on GaAs substrate using AlGaAs/Ga HEMTs.

The article entitled "Monolithic Integrated Optoelectronic Circuits" describes monolithic integration of lasers and photodetectors with electronic circuits promising higher bandwidth, improved manufacturability, smaller size, lower power and hence lower costs.

The article entitled "Heterojunction Field-Effect Transistor (HFET)" proposes a new form of FET for implementation in a heterojunction material system such as AlGaAs/GaAs.

The paper entitled "High Temperature Annealing of Modulation Doped GaAs/AlGaAs Heterostructures for FET Applications" describes high temperature annealing done on modulation doped GaAs/AlGaAs heterostructures by employing arsenic-overpressure capless annealing.

The article entitled "Submicrometre Gate Length Scaling of Inversion Channel Heterojunction Field Effect Transistor" describes the scaling to $0.5\mu\text{m}$ of the inversion channel HFET with a single strained InGaAs quantum.

The article entitled "Theoretical and Experimental Results for the Inversion Channel Heterostructure Field Effect Transistor" presents new theoretical and experimental findings for the inversion channel HFET to address the modelling needs of inversion channel opto-electronic integrated circuits (OEICs).

This article entitled "Transmitting Transistor Design" RF Transmitting Transistor and power amplifier fundamentals describes the design of the transistor system.

This article entitled "Thermally stable ohmic contacts to n-type GaAs. VIII. Sputter-deposited InAs Contacts"; by Hallili et al. discloses the electrical properties and structure of this system.

This article entitled "Thermally stable ohmic contacts to n-type GaAs. IX. Sputter-deposited InAs Contacts NiIn(mn) and NiIn(w) Contact Metals"; discloses the electrical properties and structure.

This article entitled "Transferred Substrate HBT's with 254 Gh₂F" by D. Mensa et al. Discloses the structure and fundamental design.

The listed documents are brought to the Examiner's attention because they are known to the applicant and/or the applicant's attorney and may be considered by the Examiner to be material to his/her examination. This listing should not be construed as representation that a search has been made or that no better art exists. No inference should be made that the documents are in fact material merely because they are referenced herein.

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Moreover, no representation is made that the brief descriptions, if any, of the references necessarily describe the most material aspects of the references. Further, by this listing, the applicant is not making any admission regarding the relative dates of the invention and listed disclosures.

Respectfully submitted,



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INFORMATION DISCLOSURE CITATION

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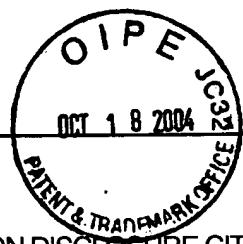
INFORMATION DISCLOSURE CITATION PAGE 1 OF 3	Atty Docket No. OPE-026	Serial No. 10/700,016
	Applicant Geoff W. Taylor et al.	
	Filed November 3, 2003	Group

US PATENT DOCUMENTS

Examiner Initials	Document No.	Date	Name	Class	Sub-class	Filing date if approp.
A	3,919,656	11/11/75	Sokal et al.	330	51	
B	4,424,525	1/3/84	Mimura	357	23	
C	4,658,403	4/14/87	Takiguchi et al.	372	96	
D	4,683,484	7/28/87	Derkits, Jr.	357	16	
E	4,806,997	2/21/89	Simmons et al.	357	16	
F	4,814,774	3/21/89	Herczfeld	342	372	
G	4,827,320	5/2/89	Morkoc et al.	357	22	
H	4,829,272	5/9/89	Kameya	333	139	
I	4,899,200	2/6/90	Shur et al.	357	30	
J	4,949,350	8/14/90	Jewell et al.	372	45	
K	5,010,374	4/23/91	Cooke et al.	357	16	
L	5,105,248	4/14/92	Burke et al.	357	24	
M	5,202,896	4/13/93	Taylor	372	50	
N	5,337,328	8/9/94	Lang et al.	372	45	
O	5,386,128	1/31/95	Fossum et al.	257	183.1	
P	5,422,501	6/6/95	Bayraktaroglu	257	195	
Q	5,436,759	7/25/95	Dijaili et al.	359	333	
R	5,698,900	12/16/97	Bozada et al.	257	744	
S	6,031,243	2/29/00	Taylor	257	13	
T	6,043,519	3/28/00	Shealy et al.	257	195	
U	US 20020067877	6/6/02	Braun et al.			
V	5,288,659	02/94	Koch et al.	438	31	
W	5,452, 118	09/95	Maruska	398	204	
X	5,999,553	12/99	Sun	372	50	

EXAMINER

DATE CONSIDERED



OCT 18 2004

INFORMATION DISCLOSURE CITATION PAGE 2 OF 3			Atty Docket No. OPE-026		Serial No. 10/700,016	
			Applicant Geoff W. Taylor et al.			
			Filed November 3, 2003		Group	
US PATENT DOCUMENTS						
Examiner Initials	Document No.	Date	Name	Class	Sub-class	Filing date if approp.
	A 6,479,844	11/02	Taylor	257	98	
	B 6,720,584	04/04	Hata et al.	257	98	
	C 6,483,170	11/19/02	Johansson	257	580	
	D 6,239,475	05/29/01	Johansson et al.	257	488	
	E 6,037,616	03/12/00	Amamiya	257	198	
	F 5,003,366	03/26/91	Mishimi et al.	257	197	
	G					
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EXAMINER			DATE CONSIDERED			



INFORMATION DISCLOSURE STATEMENT PAGE 3 OF 3		Atty Docket No. OPE-026	Serial No. 10/700,016
		Applicant Geoff W. Taylor et al.	
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
AA	<u>10-Gb/s High-Speed Monolithically Integrated photoreceiver Using InGaAs p-i-n PD and Planar Doped InAlAs/InGaAs HEMT's</u> by Akahori et al, IEEE Photonics Technology Letters, Vol 4, No. 7, July 1992		
BB	<u>10-Gbit/s InP-Based High-Performance Monolithic Photoreceivers Consisting of p-i-n Photodiodes and HEMT's</u> by Takahata et al., IEICE Trans. Electron., Vol. E83-C, No. 6 June 2000		
CC	<u>10 Ghz Bandwidth Monolithic p-i-n Modulation-doped Field Effect Transistor Photoreceiver</u> by Dutta et al., Appl. Phys. Lett., Vol. 63, No. 15, 11 October 1993		
DD	<u>20 Gbit/s Long Wavelength Monolithic Integrated Photoreceiver Grown on GaAs</u> by Hurm, et al., Electronics Letters, Vol. 33, No. 7, 27th March 1997		
EE	<u>Monolithic Integrated Optoelectronic Circuits</u> by Berroth et al., Fraunhofer Institute for Applied Solid State Physics (IAF), Germany, IEEE 1995		
FF	<u>Heterojunction Field-Effect Transistor (HFET)</u> , Reprinted from Electronics Letters, Vol 22, No. 15, pp. 784-786, 17th July 1986		
GG	<u>High Temperature Annealing of Modulation Doped GaAs/A₁GaAs Heterostructures for FET Applications</u> by Lee et al., 1983 IEEE/Cornell Conf. On High-Speed Semiconductor Devices & Ckts, 8/83		
HH	<u>Submicrometre Gate Length Scaling of Inversion Channel Heterojunction Field Effect Transistor</u> by Kiely et al., Electronics Letters, Vol. 30, No. 6 17th March 1994		
II	<u>Theoretical and Experimental Results for the Inversion Channel Heterostructure Field Effect Transistor</u> by Taylor et al., IEE Proceedings-G, Vol. 140, No. 6, December 1993		
jj	<u>Transmitting Transistor Design; RF Transmitting Transistor and power amplifier fundamentals</u> , Phillips Semiconductors; March 23, 1998		
kk	<u>Thermally Stable Ohmic Contacts to n-type GaAs. VIII. Sputter-deposited InAs Contacts</u> ; HJ Kim, Masanori Murakami, SL Wright, M. Norcott, WH Price and D. La Tulipe; 4/11/90		
II	<u>Thermally Stable Ohmic Contact to n-type GaAs IX. Sputter-deposited InAS Contacts NiIn(mn) and NiIn(w) Contact Metals</u> , J. Applied Physics, Vol. 70, 11/12/91 pgs. 7443-7448		
mm	<u>Transferred Substrate HBT's with 254 GH2F.</u> D. Mensa et al.; Electron Lett. 4/99; 35(7) pp. 605-606		
EXAMINER		DATE CONSIDERED	